AI4ME

AI for Personalised Media Experiences

Senior Research Associate

Candidate Pack

Lancaster University

AI4ME
BBC Prosperity Partnership

The way in which media experiences are produced and delivered, from television and films to video games, is rapidly changing. In television and broadcast media, the prevalence of Internet-based delivery supports the independent transport of different parts of a stream – including audio, video, and additional media experience components – to be composed together at the point of playback. This paradigm is enabling new forms of hyper-personalised and immersive story-telling, and represents both opportunities and new challenges in the network delivery of these experiences.

The Prosperity Partnership

This exciting new Prosperity Partnership will address the key challenges for personalised content creation and delivery at scale using AI and Object-Based Media (OBM). The ambition is to enable media experiences which adapt to individual preferences, accessibility requirements, devices and location.

The partnership builds on the BBC's pioneering work in OBM and its ability to run large-scale trials with its audience and programme content. University of Surrey's expertise in audio-visual AI for machine understanding of captured content will allow efficient creation of personalised OBM experiences. Lancaster University's expertise in software-defined networking will develop adaptive systems for delivery of personalised experiences to millions of people whilst maintaining cost and energy efficiency.

The Research at Lancaster

At Lancaster we are studying how the world's first hyper-adaptive end-to-end delivery infrastructure can be built to deliver personalised object-based media on an unprecedented scale. By combining novel systems-building technology with advanced real-time machine learning, this infrastructure will continually monitor popular content at a regional and national level, along with end-user personalisation preferences, to constantly drive the delivery system towards a more optimal form.

Prof. Nicholas Race,
Professor of Networked Systems

Dr Yehia Elkhatib,
Senior Lecturer

Dr Barry Porter,
Senior Lecturer

School of Computing & Communications

The School of Computing & Communications (SCC), based in the iconic InfoLab21 facility, is an international centre of excellence in research and teaching. Our research is recognised for its exceptional quality and international reputation and is supported by RCUK, EU and industry funding. As a result, our work crosscuts traditional research fields, is strongly multidisciplinary and focuses on achieving high impact. We have contributed substantially to a wide range of application domains including energy, transport, cyber-crime and social computing, and achieving impact is facilitated by our Knowledge Business Centre (KBC), the School's integrated business services.

The school is currently home to over 50 academic staff, 40 postdoctoral research staff, 120 PhD students and 500 undergraduate and taught Masters students. Our research is recognised for its exceptional quality and international reputation. The UK Research Excellence Framework (REF 2014 overall ranked us 12th in the UK for Computer Science), with 91% of our research rated as world-leading or internationally excellent (and 7th in the UK for producing work in these two categories). International Review of UK Computer Science cited us as one of only a handful of centres undertaking "leading edge systems research".

Essential to our ethos is collaboration and cross-disciplinary research, as evidenced by our current EPSRC portfolio of over £20m in research funding, and our leadership in cross-disciplinary institutes of Security Lancaster, Data Science (DSI), Material Science (MSI), Social Futures, and substantial investment in digital health and the University's new £41m Health Innovation Campus extension, which has created a world-class centre of excellence for innovation and research in health.

Person Specification

Criteria	Essential/ Desirable	How it will be assessed
PhD degree or equivalent experience in Computer Science or a related discipline	Essential	Application Form
A strong research or development background in one or more areas closely related to the project including: Software Defined Networking (SDN), Networked Functions Virtualisation (NFV), network orchestration, distributed systems design and architectures, distributed reinforced learning, machine learning, data analytics, adaptive data aggregation	Essential	Supporting Statements/ Interview
Proficient software development skills, including experience of Python or Java. An understanding of additional programming languages, such as C, would be advantageous	Essential	Supporting Statements/ Interview
Track record of publications in leading systems or networking-based peer-reviewed journals or conferences, appropriate to career stage	Essential	Application Form
Effective interpersonal skills and the ability to work independently and to assist with the technical project management of a collaborative project	Essential	Supporting Statements/ Interview
Ability to represent Lancaster University and the consortium as a whole at national and international meetings and conferences related to the project	Desirable	Supporting Statements/ Interview
Good oral and written communication in English Language, including presentation skills	Essential	Supporting Statements/ Interview
Evidence of working with multiple project stakeholders from industry and academia	Desirable	Supporting Statements/ Interview
To convey an appropriate rationale and interest in applying for this particular post	Essential	Letter of Support/Interview

Application Form – assessed against the application form, curriculum vitae and letter of support. Applicants will not be asked to make a specific supporting statement. Normally used to evaluate factual evidence eg. award of a PhD. Will be "scored" as part of the shortlisting process.

Supporting Statements - applicant are asked to provide a statement to demonstrate how they meet the criteria. The response will be "scored" as part of the shortlisting process.

Interview – assessed during the interview process by either competency based interview questions, tests, presentation etc.

The University

Lancaster University is an international leader in the provision of inspiring teaching and research. This reputation is reflected by its top ten position in all three major UK rankings (Times/Sunday Times, Guardian, and the Complete University Guide). The University was named University of the Year 2018, International University of the Year 2020 by the Times and Sunday Times Good University Guide and 136th in the Times Higher Education World University Rankings 2021.

Lancaster University has been awarded the highest possible ranking in the UK government's Teaching Excellence Framework (TEF) ratings, which aim to recognise and reward excellence in teaching and learning in UK institutions. The TEF Gold rating is based on high-quality teaching, excellent teaching facilities and the career opportunities provided to graduates.

The University's research has also been rated as world-leading in the 2014 Research Excellence Framework (REF), which assesses the quality and impact of research submitted by UK universities across all subjects. Lancaster was ranked 13th for percentage of world-leading research out of the 128 institutions listed, and 18th in the UK overall. Lancaster University is also proud to be a member of the N8 Group, a research partnership of the eight most research-intensive universities in the North of England.

A major strength of Lancaster University is its thriving ecosystem of interdisciplinary research. This collaborative approach is fostered by its mixture of formal and informal structures - including Institutes and University Research Centres - bringing together experts from different disciplines to address regional, national and global challenges.

The University comprises 16,595 students and around 3,500 staff. Lancaster is one of only a handful of universities with a collegiate system which has helped to forge a strong sense of identity and loyalty, and continues to be a distinctive feature of student life.

The University has invested over £220m since 2013 in the campus to create new academic facilities and improved teaching spaces. It is one of our greatest assets and manages to provide the best of both worlds for our students and staff, having a busy urban vibe, while surrounded by great parkland and sports facilities.
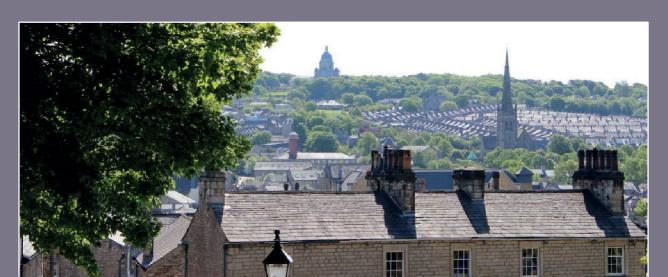
About Lancaster and the UK

The City of Lancaster has a long and diverse history, having gained its first charter in 1193. In the heart of the city centre lies a 12th-century castle – one of the best preserved in Great Britain – which dominates the hill above the River Lune.

Lancaster is small enough to explore on foot, but big enough to keep you entertained all day. It was recently ranked as one of the top ten most vibrant cities in the UK (the Experian Vibrancy Report 2013), thanks to its established arts scene and student population. It offers excellent shopping, cinemas, theatres, and restaurants, with many well preserved older buildings. The area is also well served with state, private, faith and Steiner schools.

Lancaster's live music venues are home to regular guitar, electronic, folk, classical and jazz gigs. Fans of independent film and theatre have the choice of the city centre Dukes Theatre and Cinema, Grand Theatre, Vue multiplex cinema, in addition to the University's own Nuffield Theatre and LU Cinema. Venues also regularly play host to major comedy and theatrical tours too. With a number of galleries and museums located in the city, there is plenty for lovers of the arts to get their teeth into. The latest listings can be found through the Lancaster Arts City app.

Lancaster itself is situated in a delightful part of North West England. The rural landscape is superb, with the Lakeland fells in full view across the expanse of Morecambe Bay. The River Lune runs along the edge of the Forest of Bowland, an area of outstanding natural beauty, past many villages, into Lancaster and to the sea. There are two National Parks, the Lake District and the Yorkshire Dales, which are within a 30-minute drive. Lancaster is just over two hours by fast train to London and it is less than one hour to Manchester airport, which offers direct flights to most European capitals, the Middle East, North America and the Far East.

Lancaster, and the local surrounding area, offers a unique combination of city, coast and countryside. There is an excellent choice of housing within easy commuting distance from Lancaster. With areas such as the Lake District, Preston and Morecambe offering a range of housing options, from rural to city living. Housing is varied (from old townhouses to barn conversions and new builds) and is competitively priced, especially against similar properties in South East England. The University offers allowances for staff who have to move to join us.

Our People

Lancaster's success depends on talented, creative and committed people who work hard to make this University so special and distinctive.

Our vision for the future is to be a sustainable and an academically excellent institution recognised as one of the leading universities in the world.

You will be joining a university which is amongst the best on any objective measure, but also modern, forward thinking and quick and nimble in adopting the latest developments in teaching and research. We have a range of support networks available for our employees and more information on these can be found at www.lancaster.ac.uk/working-at-lancaster.

Lancaster University is committed to attracting, developing and retaining the best staff, celebrating equality and diversity, and recognising how all staff contribute to and enhance the overall success of the University.

Our People Strategy clearly articulates that the core strength of the university is our people.

Further details on our People Strategy can be found at:
www.lancaster.ac.uk/hr/ people-strategy

Employee Benefits and Reward Package

Remuneration
The salary for these posts are on the 7 scale at Lancaster, and part of a well-developed framework that allows annual progression.

Pension
For these roles, the University offers the opportunity to join the USS (Grade 7) pension scheme.

Flexible Working
We are committed to family-friendly and flexible working policies on an individual basis.

Flexible Benefits
All staff are eligible to participate in the University's sector-leading flexible benefits scheme. The scheme provides staff with the opportunity to purchase benefits at discounted rates and also to take advantage of tax and national insurance savings on some of the benefits chosen.

The current benefits include:
- Pre-School Centre
- Cycle to work scheme
- Season ticket loan
- Low emission cars
- Charitable giving
- Shopping discounts
- Dental insurance
- Health cash plan
- Sports Centre membership
- Lancaster and external courses
- Professional bodies' membership fees
- Car parking
- Subsidised annual bus pass
- Discounted staff dining card
- Theatre membership
- Home technology
- Additional annual leave

Detailed information on benefits are available at www.lancaster.ac.uk/employment-benefits

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Join Us

Lancaster University